



I, Kimio Kataoka, do hereby declare that I am familiar with the above-identified patent application. I entered Osaka Shipbuilding Co., LTD (former company of Daizo Co., Ltd) on 1995 and I now belonged to Research and Development Department. I have been in R & D Department for 10 years.

(1) Under my control, three samples of the aerosol compositions shown in Table (1) were prepared and photographed were taken.

[Table 1]

Samples		Ingredient	Wt %
Sample 1	Concentrate	Kerosene	70.0
		Diethylene glycol monoethyl etheracetate	25.0
		Purified water	5.0
	Aerosol composition	Concentrate	30.0
		DME	70.0
Sample 2	Concentrate	Pyrethrin 20%	1.00
		Permethrin 90%	0.222
		Piperonyl Butoxide	0.50
		Sorbitan Monooleate	0.05
		Fragrance	0.228
		Isopropanol	1.0
		EXXSOL D-60	29.0
		Sodium Nitrite	0.09
		Water	59.91
	Propellant	Propellant A-91	8.0
Sample 3	Concentrate	Pyrethrin 20%	1.00
		Permethrin 90%	0.222
		Piperonyl Butoxide	0.50

		Sorbitan Monooleate	0.05
		Fragrance	0.228
		Isopropanol	1.0
		EXXSOL D-60	16.91
		Sodium Nitrite	0.09
		Water	30.0
	Propellant	DME	50.0

Sample1: Aerosol composition of Example 1 of the present application USPA No.10/289,551 (Single phase solution)

Sample2: Aerosol composition of Example of the Nelson WO96-22686 (Oil out emulsion)

Sample3: Aerosol composition of the Nelson with having 30 wt % of water

[Result]

[Sample 1] The concentrate of sample 1 is separated into two phases, where the upper layer is oleophilic liquid and the lower layer is hydrophilic liquid (see Fig.1A and Fig.1B). The aerosol composition of sample 1 consists of 30 wt % of concentrate and 70 wt % of propellant (DME). As shown in Fig.1C, the DME dissolves with oliophilic liquid and the hydrophilic liquid of the concentrate to form single-phase solution.

[Sample 2] The concentrate of sample 2 is also separated into two phases (see Fig.2A). The aerosol composition of sample 2 consists of 92 wt % of concentrate and 92 wt % of propellant (A-91), and the oleophilic liquid dissolves with A-91 to form larger oleophilic liquid (see Fig.2B). The oil-out emulsion is formed by shaking the aerosol composition of sample 2 (see Fig. 2C).

[Sample 3] The concentrate of sample 3 is also separated into two phases (see Fig.3A). The aerosol composition of sample 1 consists of 50 wt % of concentrate and 50 wt % of propellant (DME). This aerosol composition comprises DME as a propellant as written in the Nelson(p.7, lines 28-p.8, top). The amount of DME, 50 wt %, is determined

because it is the largest amount written in Nelson, and the amount of the water. 30 wt %, is determined because it is the smallest amount written in Nelson. Since the emulsion breaker (DME) is combined to the concentrate, the DME dissolves with oleophilic liquid and the hydrophilic liquid of the concentrate. However it does not form single-phase solution but forms double-phase solution, as shown in Fig.3B and Fig.3C).

(2) Under my control, the aerosol compositions of above samples were sprayed and the diffusion process of the sprayed particles were followed by videotaping. Further, this was preceded by using the laser beam for easy understanding.

[Result]

[Sample 1] As seen in the serial photographs of sample 1 (see Fig. 4), particles of the sample 1 form swirling current after sprayed and diffuse for more than 4 seconds around the atmosphere. This is believed to be due to the diameter of particles of the sample 1 (average of 9.3 micro meter)(see Fig.5), and it is small enough to form swirling current. Therefore the effective ingredient of the sample 1 floats longer in the atmosphere for longer effect.

[Sample 2] On the contrary, the particles of the sample 2 diffuse straightly without forming swirling current (see Fig.6). So the most of the particles fall on the ground after 2.5 seconds. As seen in Fig. 7, the average diameter of the particles is 40.5 micro meter which is 4 times the size of the particles of sample 1

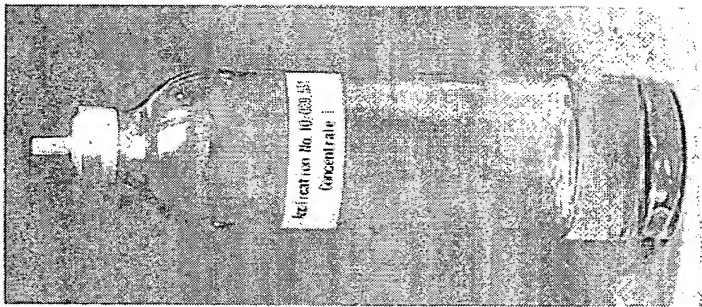
[Sample 3] The particles of the sample 3 show some swirling current after the spraying(see Fig.8), however the most of the particles are on the ground after 3 seconds. The average diameter of the particles is 13.7 micro meter which is very close to sample 1, however the diameter distribution is very wide compare to sample 1(see Fig.9). It has a range of 5-100 micro meter.

I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statement may jeopardize the validity of the application or any patent issued thereon.

Kimio KATAOKA

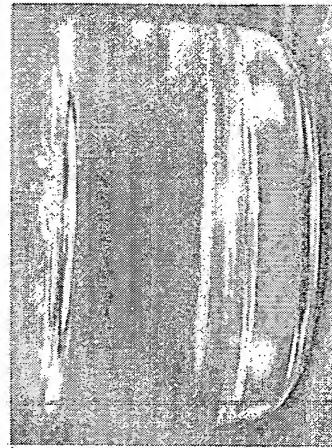
Date

[Fig. 1A]
Concentrate

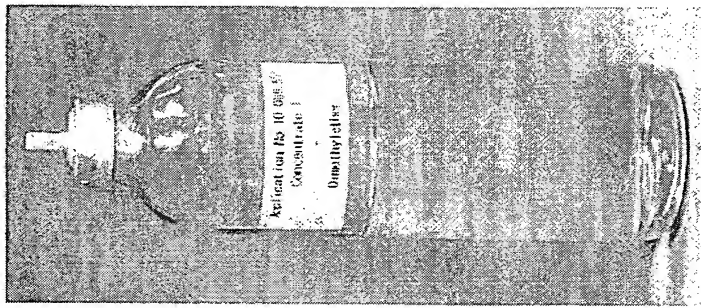


Fill DME
↑

[Fig. 1B]

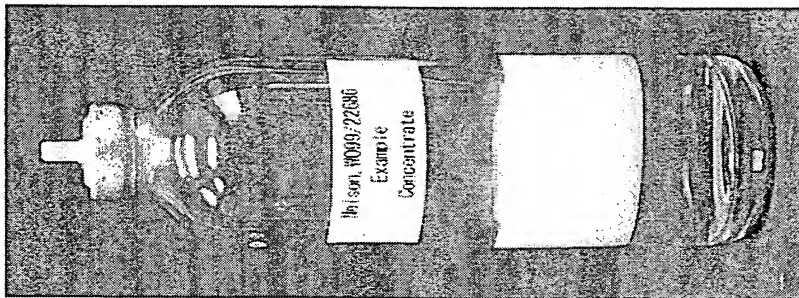


[Fig. 1C]
Aerosol composition



single-phase

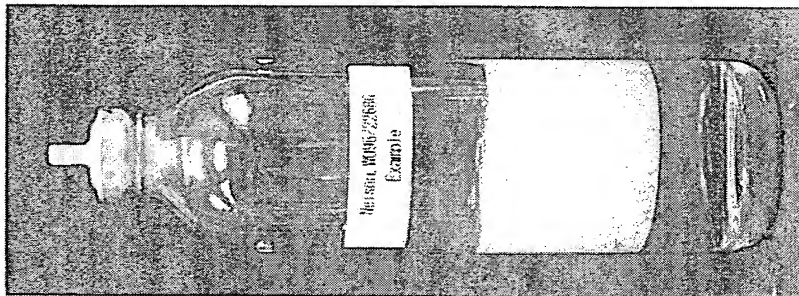
[Fig. 2A]
Concentrate



Fill
propellant
A-91



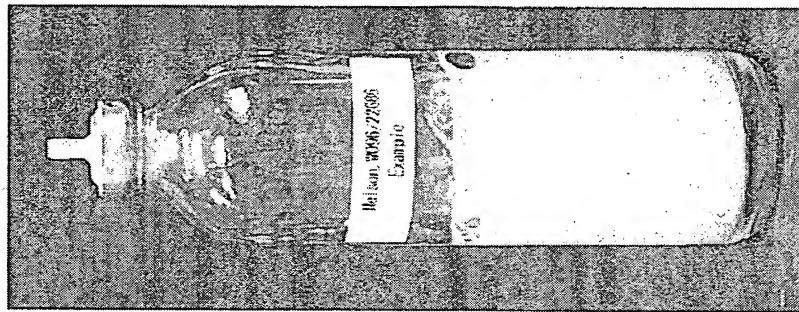
[Fig. 2B]
Aerosol Composition



shake
the container



[Fig. 2C]
Oil-out emulsion



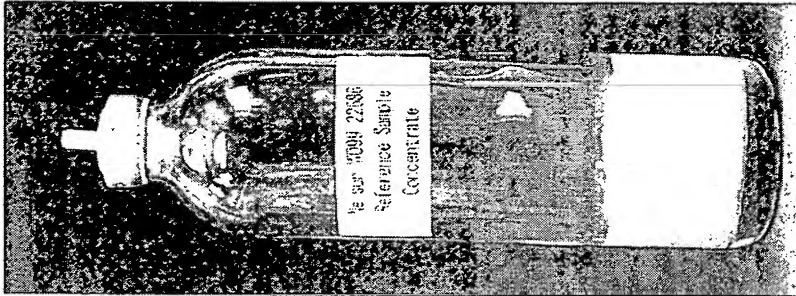
Upper layer: oil phase
Down layer: aqueous phase

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[Sample 3] (Nelson, W099/22686) Reference Sample

[Fig. 3A]

Concentrate

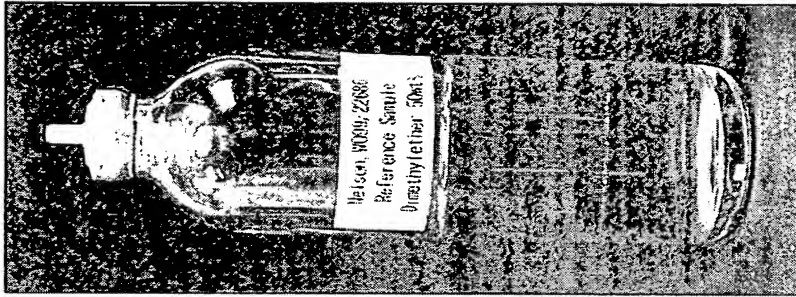


Fill
DME 50wt%
(maximum)

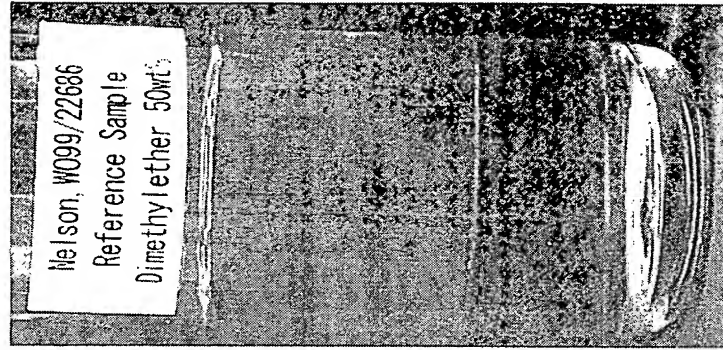


[Fig. 3B]

Aerosol composition



[Fig. 3C]



Water 30wt%
(minimum)

Upper layer : oil phase
Down layer : aqueous phase

[Sample 1] (Application

No. 10/089, 551)

[Fig. 4]

just sprayed



0.5 second later



1 second later



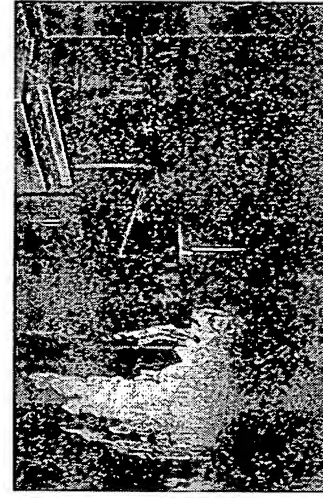
1.5 second later



2 seconds later



2.5 seconds later



3 seconds later



3.5 seconds later



4 seconds later



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[Sample 2] (Nelson, W099/22686)

[Fig. 6]

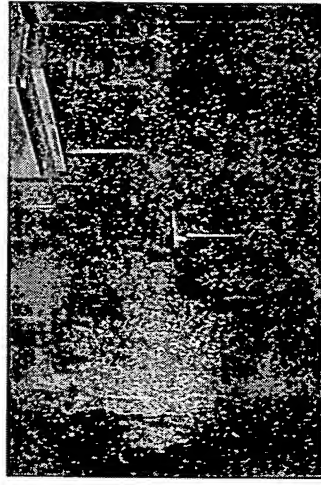
just sprayed



0.5 second later



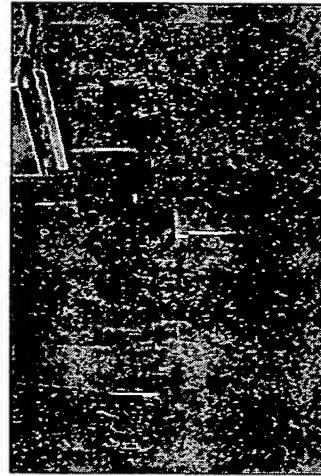
1 second later



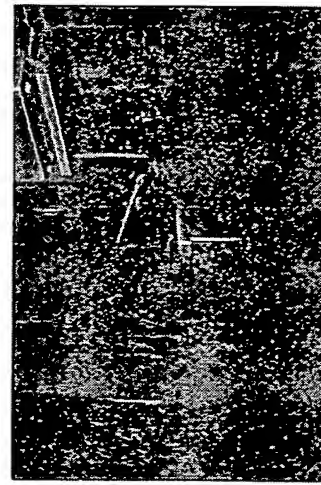
1.5 second later



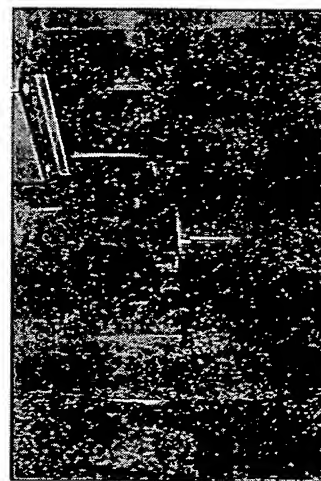
2 seconds later



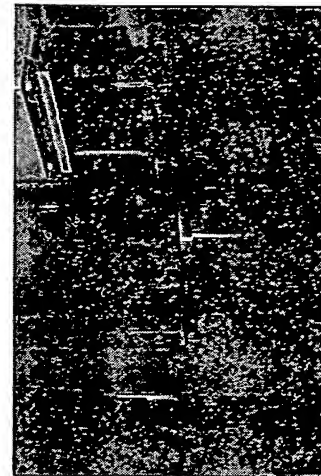
2.5 seconds later



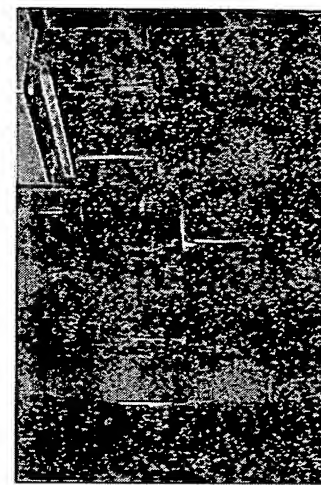
3 seconds later



3.5 seconds later



4 seconds later

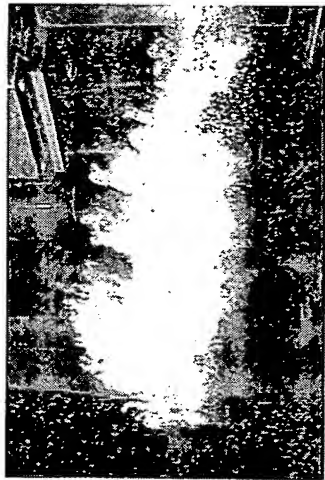


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[Sample 3] (Nelson, W099/22686) Reference sample

[Fig. 8]

just sprayed



0.5 second later



1 second later



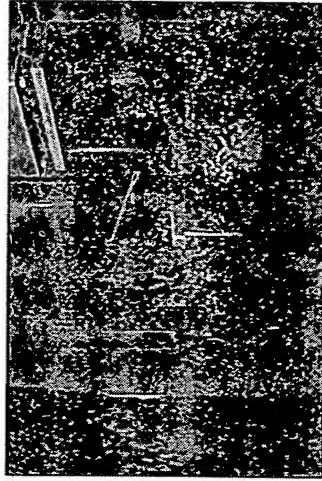
1.5 second later



2 seconds later



2.5 seconds later



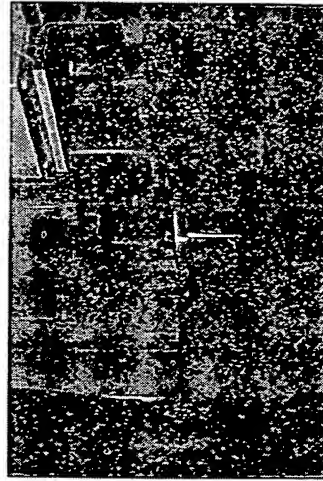
3 seconds later



3.5 seconds later



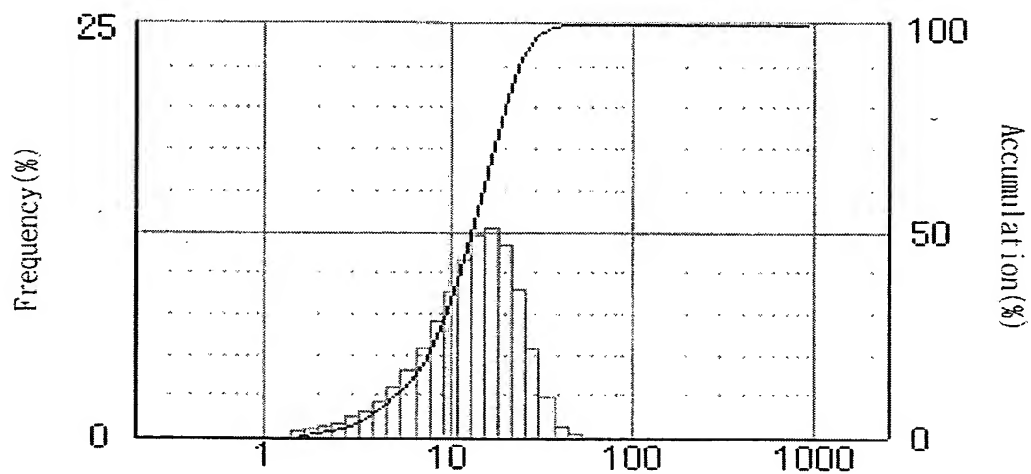
4 seconds later



[Sample1](Application No.10/089,551)

[Fig.5]

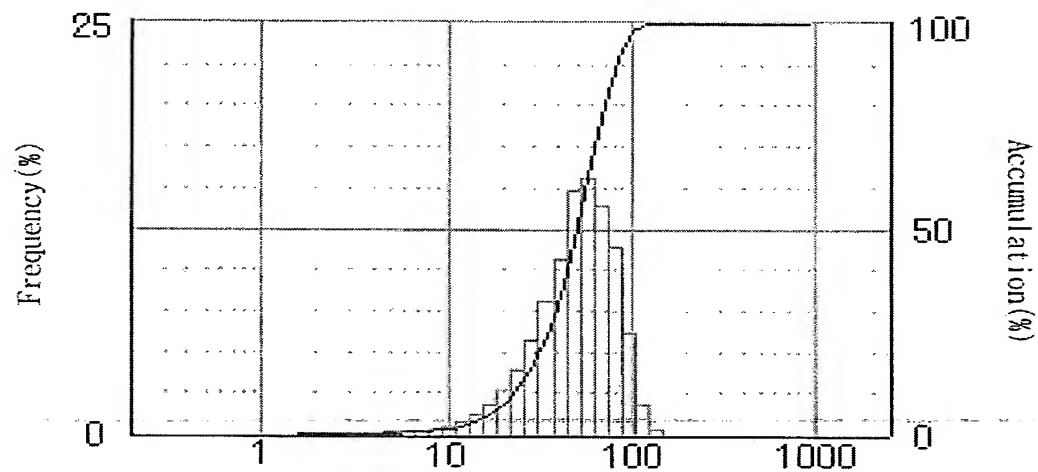
Average diameter of the particles is $9.3(\mu\text{m})$



[Sample2](Nelson, WO99/22686)

[Fig.7]

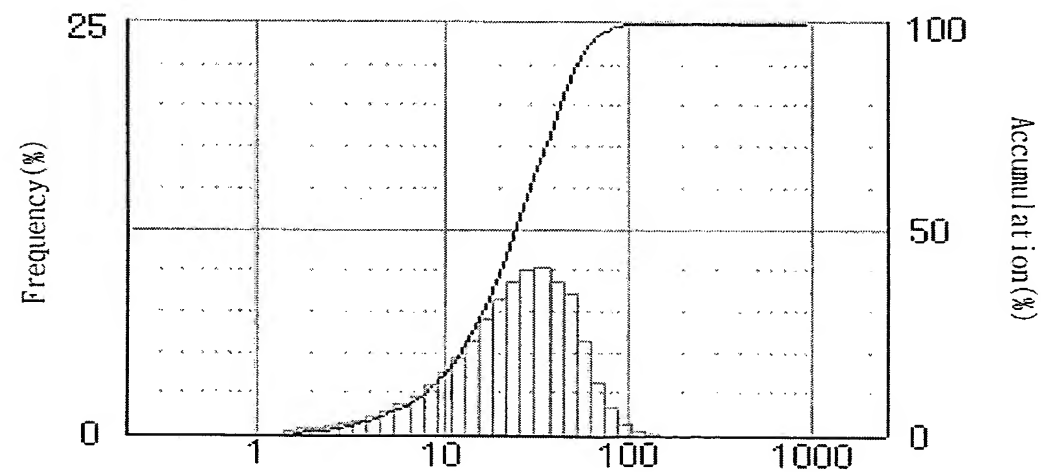
Average diameter of the particles is $40.5(\mu\text{m})$



[Sample3](Nelson, WO99/22686) Reference sample

[Fig.9]

Average diameter of the particles is $13.7(\mu\text{m})$



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